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ABSTRACT

The performance of Icelandic-speaking children on the comprehension of Icelandic pronoun gender was investigated. Eighty children ranging in age from 4-8 years were tested. It was hypothesized that if children rely primarily on formal information for determing grammatical gender, they should perform equally well on both natural and syntactic gender and on both familiar and unfamiliar words when equivalent formal information is available. The results failed to replicate an earlier study of German-speaking children and failed to confirm the hypotheses. The children's performance was significantly better on natural gender than on syntactic gender, and on familiar syntactic gender as opposed to unfamiliar syntactic gender. The results also indicate that formal information about noun gender alone was not useful to Icelandic children in assigning gender to nonsense words before the age of 7 years. The contradictory results in relation to the German study are attributed to differences between the noun endings and developmental patterns for gender of the two languages. (RW)

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SEMANTIC AND FORMAL FACTORS IN THE COMPREHENSION OF ICELANDIC PRONOUN GENDER

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This study is concerned with the basis for development of the grammatical category gender. While gender is at best a minor grammatical distinction in English, in many of the world's languages, subclassification of nouns into two or more groups with differing linguistic properties is a pervasive organizing principle, dictating the choice of form for determiners, adjectives, pronouns, and so on. Knowledge of the major organizational properties of language, such as grammatical roles (e.g. Subject) or grammatical categories (e.g. Noun) must be innate, it has been argued, for the child would not be able to discover these complex organizing principles from the available input in the short time during which he in fact accomplishes the feat. The appeal to innate knowledge, if it can be made at all, is appropriate, however, only when for such apparently universal categories as Subject or Noun. Gender and other noun classification systems, though widespread, are diverse and nonuniversal, and their acquisition must be accounted for in some other way, taking into consideration both the child's general language-learning predispositions and the properties of the particular linguistic system he is being exposed to.

Previous research on the development of grammatical gender has focused on two scenarios. In the first, grammatical gender is claimed to be based on a more general understanding of natural, or semantic, gender. The child will first recognize the linguistic distinctions as relevant to nonlinguistic gender distinctions and will only later extend them systematically to arbitrary grammatical gender. Such a course of development has been proposed, for example, by Slobin 1966, 1973, Pinker 1982 and Pálsdóttir 1982.

In the second scenario, the child discovers grammatical gender as an organizing principle by noting regularities in the formal properties of the linguistic system he is learning. He comes to recognize, for example, that nouns with particular endings or syllable structures always cooccur with particular, distinct articles or pronouns. Such formal regularities may serve as the basis for the child's developing gender system even before he is able to reliably make natural gender distinctions and they may continue to dominate his gender classifications. This account has been argued for by Maratsos and Chalkley 1980, among others, and receives empirical support from studies of Hebrew (Levy 1980), French (Karmiloff-Smith 1979) and German (Böhme & Levelt 1979).

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In adult Icelandic, a Germanic language related to English and German, neither the natural gender of referents nor the formal properties of particular nouns are necessarily very good predictors of its three grammatical genders. There are, however, some probabilistic relations which hold for the language as a whole. For instance, female beings such girls, mothers, and other women are likely to be referred to with feminine forms while boys, fathers and other men are likely to be referred to with masculine ones. In terms of formal properties, nouns which end in =a are predominately feminine while those ending in =i or =ur tend to be masculine. Although there are many exceptions to such generalizations, my supposition is that these kinds of general, albeit imperfect, relations will prove helpful to the Icelandic-learning child as he discovers the existence of and formulates the bases for grammatical gender categories.

My goal was to follow up a German study reported by Böhme and Levelt (1979), who presented the rather surprising finding that German-speaking children in a pronoun comprehension task performed better on syntactic gender than semantic gender when asked to identify the antecedents of gender-marked genitive pronouns. For example, German children between three and six years old understood the pronoun <u>ihre</u> 'her' better when it referred to a watering can (<u>die Giesskanne</u>) then when it referred to a girl doll. Böhme and Levelt proposed that this was because the =e ending on <u>Giesskanne</u> was recognized as a formal cue of feminine gender. In their experiment, however, they did not systematically control for the availability of formal gender cues of this type, so an overall pattern of development for natural versus syntactic gender is difficult to discover.

Since German and Icelandic are structurally, as well as historically, related languages, I was interested in whether Böhme and Levelt's findings would extend to Icelandic children as well. To clarify the issue about the relative importance of semantic and formal information in the pronoun comprehension task, I designed an Icelandic version of the Böhme and Levelt study in which the same amount of potential formal information was always available, but where the familiarity of particular referents and the amount of information about semantic, or natural, gender varied. These manipulations would allow me to test two hypotheses:

I. If children rely primarily on formal information for determining grammatical gender, then they should perform equally well on both natural and syntactic gender when equivalent formal information is available.
II. If children rely primarily on formal information for determining grammatical gender, then they should perform equally well on both familiar and unfamiliar words when equivalent formal information is available.

SUBJECTS - The children participating in the experiment were all native speakers of Icelandic living in the greater Reykjavík area. Sixteen children were tested in each of five age groups from four through eight years old (mean ages 4;6, 5;4, 6;5, 7;5 and 8;4), for a total of 80 children. Within each age group there were half girls and

half boys. The same adult native speaker tested the children individually at their nursery or elementary school.

MATERIALS - The experimental materials consisted of four arrays of three categorically related objects each. Each array was composed of one member whose name fell into each of the three genders of Icelandic, masculine, feminine, and neuter. Table 1 gives these four object sets and the names of the objects in each. One set, People, represented natural gender while three sets, Animals, Vehicles and Nonsense, were used to test arbitrary syntactic gender. Of the syntactic sets, Animals and Vehicles were potentially quite familiar to the children. The Nonsense objects were vaguely geometric shapes made of clay and painted solid colors, intended to look as little like any recognizable object as possible. They were given nonsense names in accordance with the formal restrictions given below. The dolls (People and Animals) wore colored felt scarves. The Vehicles and Nonsense objects had small colored flags attached.

TABLE 1
Object arrays

Gender Type	Category	Feminine multisyllabic =a-final	Masculine multisyllabic =i-final	Neuter monosyllabic (C)C-final
Natural	People	mamma 'mommy' woman doll	pabbi 'daddy' man doll	barn 'child' sexless baby doll
Familiar Syntactic	Animals	kanína 'rabbit' rabbit puppet	api 'monkey' monkey puppet	ljón 'lion' lion puppet
	Vehicles	rúta 'bus' toy bus	jeppi 'jeep' toy jeep	skip 'ship' toy navy ship
Unfamiliar	Nonsense	krada black serpentine figure	neli brown cubish figure	þal orange pyramidal figure

Across all four arrays, the formal properties of the object names were held constant for each gender category: feminine words were always multisyllabic ending in =a, masculine words multisyllabic ending in =i, and neuter words monosyllabic with consonantal endings. These formal types were selected as relatively likely to be associated with specific genders by children based on a survey of nouns used spontaneously by three two-year olds who had been recorded as part of a longitudinal study of the acquisition of Icelandic, as shown in Table 2.

For each object array, a set of twelve instructions was prepared such that there was one instruction containing each of the twelve third person singular personal pronouns of Icelandic given in Table 3.

TABLE 2
Proportion of gender category membership by form type in 2-year old naturalistic speech sample

	Fem.	Masc.	Neut.
multisyllabic -a	95	1	4
multisyllabic -i	2	78	20
monosyllabic -(C)C	29	14	58

TABLE 3
Icelandic third-person singular personal pronouns

	Feminine	Masculine	Neuter
Nominative	hún	hann	það
Accusative	hana	hann	það
Dative	henni	honum	því
Genitive	hennar	hans	þess

For example, the instructions for the object set Vehicles were as follows:
(a) Nominative: Hvar er hann/hún/það? 'Where is he/she/it?'
(b) Accusative: Viltu benda á hann/hana/það? 'Will you point to him/her/it?'
(c) Dative: Viltu ýta honum/henni/því? 'Will you push him/her/it?'
(d) Genitive: Hvernig er fáninn hans/hennar/þess á litinn? 'What color is his/her/its flag?'
Each instruction was written separately on a small card and the cards for each object set were grouped together.

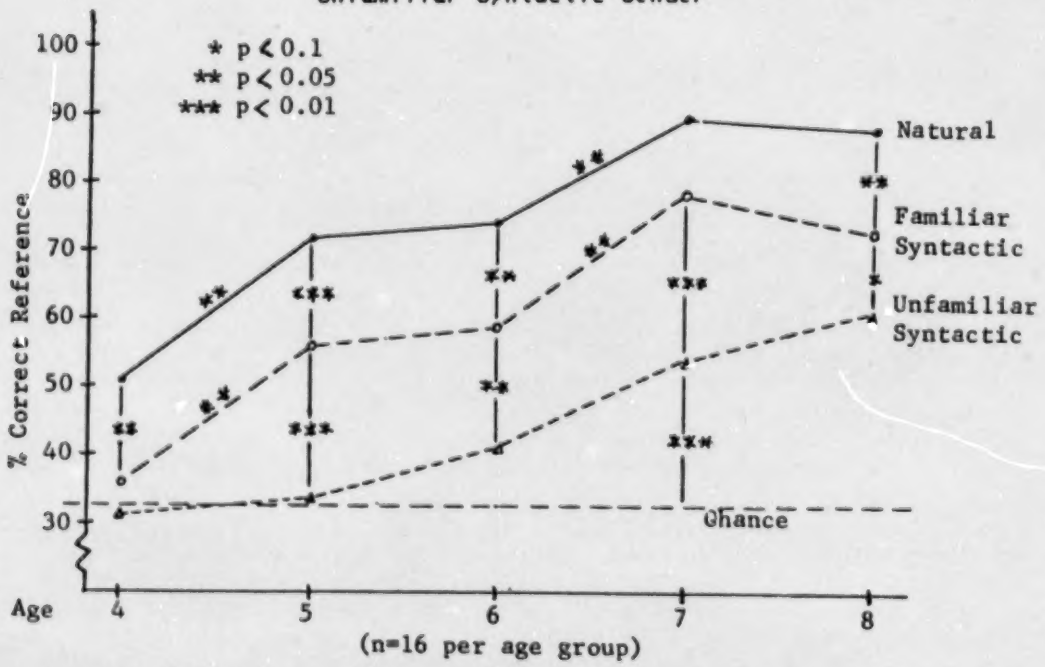
PROCEDURE - The task consisted of placing one array of objects before the child at a time, and making sure that the child was familiar with the object names, especially in the case of the Nonsense objects. During this familiarization phase, the experimenters were careful not to use any other gender-marked forms such as pronouns, adjectives or quantifiers which might give the child additional information about gender classification. Since the task was not intended to be a memory task, the object names were repeated frequently during the test phase of the experiment, whenever the children seemed to hesitate in their choices.

This familiarization was followed by the pronoun comprehension test proper. For each object set, the experimenter took up the appropriate set of instruction cards, fanned them face down, and asked the child to pick one. The adult then read the instruction on the card, which in all cases required the child to act on or describe one of the three objects, basing his choice on the gender of the pronoun con-

tained in the instruction. For example, if the child was looking at the Vehicle array and heard the instruction Hvar er hún? "Where is she?", he would have to point to or otherwise indicate the bus in order to show that he recognized that the feminine pronoun hún referred to rúta, rather than skip or jeppi. Once the child had made a choice, correct or incorrect, he "won" the instruction card and was allowed to pick another and so on through the twelve cards for each object set. A second adult recorded the responses. When one array was finished, it was removed and a new one laid out. The procedure was repeated until all four object sets had been completed. There were two orders of presentation of the four sets: Natural-Syntactic, that is, People, Vehicles, Animals and Nonsense, and Syntactic-Natural, that is, Vehicles, People, Animals and Nonsense. Half of the children in each age group got each order. The entire procedure, a total of 48 trials, took approximately 15 minutes per child.

RESULTS - An analysis of variance of the results shows main effects for age, array type, pronoun case, and pronoun gender, but not for subject sex or order of array presentation. The major results as concern the two hypotheses are shown in Figure 1.

Figure 1
Percent of Correct Responses by Natural vs. Familiar Syntactic vs. Unfamiliar Syntactic Gender



(n=16 per age group)

For the purpose of testing the hypotheses, I have combined the results of the two familiar syntactic gender arrays; children in all age groups in fact performed somewhat better on Animals than on Vehicles. As you can see, the results did not support either hypothesis. Children's performance on natural gender was significantly better than on syntactic gender and familiar syntactic gender was significantly

better than unfamiliar syntactic gender for all but the youngest age group. There, neither type of syntactic gender was handled at better than chance level. It was not until age seven that children's ability to assign characteristic gender to nonsense words based on formal, phonological information alone exceeded chance. All results point to the conclusion that formal information about noun gender alone was not very useful to Icelandic children in this task before age seven. When the younger children were relatively successful at determining reference based on pronoun gender, other factors such as the availability of semantic gender information and the probable familiarity of particular lexical items seem to be the most reasonable explanations. Indeed, a simple cumulative information model such as illustrated in Table 4 makes much better predictions about the pattern of results for Icelandic children than one based on the primary importance of formal cues.

TABLE 4
Difficulty predictions based on cumulative information model

	Information Available			
Gender Type	Natural Gender	Familiar Word	Formal Cues	Predicted Difficutly
Natural	+	+	+	easiest
Familiar Syntactic	-	+	+	↕
Unfamiliar Syntactic	-	-	+	hardest

DISCUSSION - Although the main findings of this experiment are clear, they are inconsistent not only with Böhme and Levelt's German results, but also with Karmiloff-Smith's report of French gender development. Icelandic children seemed to ignore the potentially available formal gender cues until seven years old, while German 3-6 year olds apparently relied on such cues even more than on semantic gender information. The French-speaking children studied by Karmiloff-Smith also depended heavily on the phonological cue of noun form, even when those cues contradicted semantic gender information. Can these apparently contradictory pictures of the importance of formal information for the development of gender be reconciled?

Assuming that the discrepancy in results between the Icelandic and German pronoun comprehension studies does not lie in methodological problems, it seems that it might be accounted for by possible differences in the relative information value of the particular noun endings available to children in the two language groups. Perhaps, for instance, final -e is a better indicator of feminine gender to German children than final -a is to Icelandic children. While the -a ending on nominative singular nouns in Icelandic is usually feminine, the same ending has many functions in other cases, genders, numbers and word classes. For example, it can indicate the oblique cases of singular weak masculine nouns, the plural accusative of many mascu-

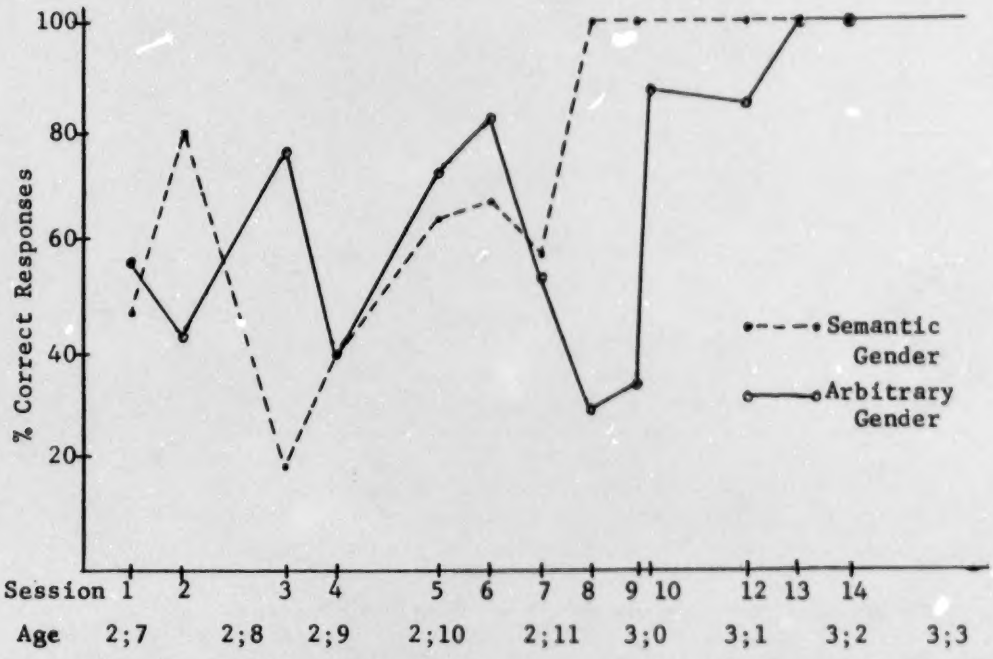
lines, and so on. The same holds for the other potential formal cues we used in this study. Such plurifunctionality of endings may well lead to confusion and reduced information value for the Icelandic-learning child. German noun forms, in contrast, may be less multifunctional, so final -e on a word may be a better gender cue overall. Thus German children may perform better on this task because they can be more sure when feminine gender is being signalled. In French, too, the formal information may be more consistently meaningful to language-learners as a gender cue.

The differences in experimental results for Icelandic and German suggest that there are two different developmental patterns for gender in these closely related languages. In German, where formal correlates of grammatical gender may be relatively stable and thus easier to "discover," children may identify at least a few formal gender cues at an age where semantic gender classifications are still not functional. Early gender in German may thus be based on aspects of noun form. Semantic information may come to be incorporated into the overall gender system at a later age. In Icelandic, where the formal gender correlates may be more opaque, children appear not to succeed in figuring out a stable formal basis for gender categorization before their nonlinguistic cognitive development has led them to attend to natural gender distinctions. These may then serve as the foundation for linguistic gender distinctions at the earliest stages of development. Formal cues, to the extent that they are "discovered" as development proceeds, may assume more importance in the child's more mature system.

Clearly, the two patterns of development I have sketched for Icelandic and German are highly tentative. Although the experimental data are suggestive, I think it would be a serious mistake to draw too many conclusions about the early foundations of gender systems based on data from children in late preschool and early elementary school. Much of the serious foundation-laying for grammatical gender must go on at younger ages, especially between two and four years old. We need to find reliable ways to look at the growth and elaboration of gender systems in younger children, in both German and Icelandic, to confirm or disconfirm the tentative developmental patterns. Some preliminary analyses of naturalistic longitudinal data collected for Icelandic offer preliminary support for the semantic-based gender development hypothesized above. Data on one little girl's use of personal pronouns with appropriate gender in spontaneous speech are graphed in Figure 2. The accuracy of her pronoun reference in terms of gender was very variable until just before her third birthday, for both semantic and arbitrary grammatical gender referents. At 2;11-1/2, she seems to have abruptly figured out semantic gender and her use of pronoun gender for reference to people and dolls is completely accurate from then on. Pronoun use for arbitrary grammatical gender reached the same level of accuracy some two months later, at 3;1-1/2. Of course, more information is needed from other children and about other segments of the total gender system before we can draw firmer conclusions. Comparable longitudinal data from other languages will be essential too.

As I tried to reconcile apparently contradictory facts about

Figure 2
Correct Pronoun Reference by Gender for Referents with Semantic vs. Arbitrary Grammatical Gender
(data from Björg, a girl, based on Pálsdóttir 1982)



gender development crosslinguistically I became aware of a number of issues that I think are worth reinterating here. One of these is how important seemingly minor differences in the formal complexity of particular gender systems may turn out to be for language acquisition. Smoczyńska (in press) has made this point in her discussion of Polish and Russian development and I think we have another example in contrastive analyses of Icelandic and German. Typical characterizations of the two languages would say that the relationships between particular noun endings and gender are correlational at best, less consistent in both cases than, for instance, in French or Hebrew. Yet the acquisition data suggest that there are differences in the strengths and patternings of these correlations in the two systems that may be important enough to have major consequences for the very nature of early gender systems.

I also think it is well worth questioning the appropriateness of characterizations of adult gender systems as descriptions of the problem facing beginning language-learners. The full complexity of adult systems may not be relevant when young children are first establishing rudimentary gender classifications. It seems likely that young children will hear gender-marked forms relatively often in contexts where semantic gender is relevant and that this correlate of the gender system may be more salient for them than linguistic descriptions emphasizing the arbitrariness of the adult system would lead us to

expect. In work with the longitudinal data, I am attempting to arrive at a more accurate characterization of adult Icelandic in terms of the gender information actually available to young children.

In conclusion, there are still many more details about the development of gender systems that remain to be uncovered. To debate the correctness of formal versus semantic accounts will not be as productive in the long run as understanding the complex interacting factors that may lead children learning particular languages (or even particular children?) to choose one type of solution or another as they attempt to gain a foothold in the often slippery adult systems. I hope that continuing research on gender development in Icelandic will begin to answer some the questions that I have raised here.

REFERENCES

Böhme, K., and W.J.M. Levelt. (1979) Children's use and awareness of natural and syntactic gender in possessive pronouns. Paper presented at the conference on "Linguistic Awareness and Learning to Read," Victoria, British Columbia, June 26-30, 1979.

Karmiloff-Smith, A. (1979) A Functional Approach to Child Language. Cambridge: Cambridge University Press.

Levy, Y. (1980) The non-interaction of linguistic and cognitive notions of gender in the language of young children. Unpubished ms., The Hebrew University, Jerusalem.

Maratsos, M.P., and M.A. Chalkley. (1980) The internal language of children's syntax: the ontogenesis and representation of syntactic categories. In K.E. Nelson (ed.) Children's Language. Volume 2. New York: Gardner Press, Inc.

Pálsdóttir, M. (1982) Hvernig laerist kyn persónufornafna? (How is personal pronoun gender learned?) Unpublished ms., University of Iceland.

Pinker, S. (1982) A theory of the acquisition of lexical-interpretive grammars. In J. Bresnan (ed.) The Mental Representation of Grammatical Relations. Cambridge, Mass.: M.I.T. Press.

Slobin, D.I. (1966) The acquisition of Russian as a native language. In F. Smith & G.A. Miller (eds.) The Genesis of Language: A Psycholinguistic Approach. Cambridge, Mass.: The M.I.T. Press.

----------. (1973) Cognitive prerequisites for the development of grammar. In C.A. Ferguson & D.I. Slobin (eds.) Studies of Child Language Development. New York: Holt, Rinehart and Winston, Inc.

Smoczyńska, M. (in press) Acquisition of Polish. In D.I. Slobin (ed.) The Crosslinguistic Study of Language Acquisition. Hillsdale, N.J.: Lawrence Erlbaum Associates.